

What Is Claimed Is:

1. A dual LCD device, comprising:
 - a liquid crystal panel having a liquid crystal layer interposed between a first substrate and a second substrate;
 - first and second polarizing plates attached to opposing surfaces of the liquid crystal panel;
 - a first front light unit attached to a front side of the liquid crystal panel;
 - and
 - a second front light unit attached to a rear side of the liquid crystal panel.
2. The device according to claim 1, wherein the liquid crystal panel is formed in a mode selected from the group consisting of TN mode, IPS mode, and VA mode.
3. The device according to claim 1, wherein the first and second polarizing plates are attached to both surfaces of the liquid crystal panel such that optical axes of the first and second polarizing plates are perpendicular to each other.

4. The device according to claim 1, wherein the first front light unit is operated to cause a first image to be displayed on the rear side of the liquid crystal panel, and the second front light unit is operated to cause a second image to be displayed on the front side of the liquid crystal panel.

5. The device according to claim 1, wherein the liquid crystal panel functions in a TN mode, such that the first front light unit is in an ON state and an image displayed on the rear side of the liquid crystal panel is in a black mode, and such that the first front light unit is in an OFF state and an image displayed on the rear side of the liquid crystal panel is in a white mode.

6. The device according to claim 1, wherein the liquid crystal panel functions in a TN mode, such that the second front light unit is in an ON state and an image displayed on the front side of the liquid crystal panel is in a black mode, and the second front light unit is in an OFF state and an image displayed on the front side of the liquid crystal panel is in a white mode.

7. A dual LCD device, comprising:

a liquid crystal panel having a liquid crystal layer interposed between a first substrate and a second substrate;

first and second polarizing plates attached to opposing surfaces of the liquid crystal panel;

a first front light unit attached to a front side of the liquid crystal panel;

a second front light unit attached to a rear side of the liquid crystal panel; and

a fine reflecting and scattering film prepared between one of the first polarizing plate and the first front light unit, and the second polarizing plate and the second front light unit.

8. The device according to claim 7, wherein the liquid crystal panel is formed in one mode selected from the group consisting of TN mode, IPS mode, and VA mode.

9. The device according to claim 7, wherein the first and second polarizing plates are attached to both surfaces of the liquid crystal panel such that optical axes of the first and second polarizing plates are perpendicular to each other.

10. The device according to claim 7, wherein the first front light unit is operated to cause a first image to be displayed on the rear side of the liquid crystal panel, and the second front light unit is operated to cause a second image to be displayed on the front side of the liquid crystal panel.

11. The device according to claim 7, wherein the fine reflecting and scattering film is prepared between the first polarizing plate and the first front light unit and receives ambient light supplied from the rear side of the liquid crystal panel and reflects the received ambient light to the rear side of the liquid crystal panel.

12. The device according to claim 11, wherein the fine reflecting and scattering film is prepared between the first polarizing plate and the first front light unit and enhances a brightness of the image displayed on the rear side of the liquid crystal panel.

13. The device according to claim 7, wherein the fine reflecting and scattering film is prepared between the second polarizing plate and the second front light unit and receives ambient light supplied from the front side of the liquid crystal panel and reflects the received ambient light to the front side of the liquid crystal panel.

14. The device according to claim 13, wherein the fine reflecting and scattering film is prepared between the second polarizing plate and the second front light unit and enhances a brightness of the image displayed on the front side of the liquid crystal panel.

15. The device according to claim 7, wherein the fine reflecting and scattering film is prepared between the first polarizing plate and the first front light unit and prevents Moiré phenomenon from occurring when an image is displayed on the rear side of the liquid crystal panel due to a light emitted from the first front light unit.

16. The device according to claim 7, wherein the fine reflecting and scattering film is prepared between the second polarizing plate and the second front light unit and prevents Moiré phenomenon from occurring when an image is displayed on the front side of the liquid crystal panel due to a light emitted from the second front light unit.

17. A dual LCD device, comprising:

a liquid crystal panel having a liquid crystal layer interposed between a first substrate and a second substrate;

first and second polarizing plates attached to opposing surfaces of the liquid crystal panel;

a first front light unit attached to a front side of the liquid crystal panel;

a second front light unit attached to a rear side of the liquid crystal panel; and

a scattering film prepared between one of the first polarizing plate and the first front light unit, and the second polarizing plate and the second front light unit.

18. The device according to claim 17, wherein the liquid crystal panel is formed in one mode selected from the group consisting of TN mode, IPS mode, and VA mode.

19. The device according to claim 17, wherein the first and second polarizing plates are attached to both surfaces of the liquid crystal panel so that optical axes of the polarizing plates are perpendicular to each other.

20. The device according to claim 17, wherein the first front light unit is operated to cause a first image to be displayed on the rear side of the liquid crystal panel, and the second front light unit is operated to cause a second image to be displayed on the front side of the liquid crystal panel.

21. The device according to claim 17 wherein the scattering film is prepared between the first polarizing plate and the first front light unit and prevents Moiré phenomenon from occurring when an image is displayed on the rear side of the liquid crystal panel due to a light emitted from the first front light unit.

22. The device according to claim 17, wherein the scattering film is prepared between the second polarizing plate and the second front light unit and prevents Moiré phenomenon from occurring when an image is displayed on the front side of the liquid crystal panel due to a light emitted from the second front light unit.

23. A method of fabricating a dual LCD device, comprising:

providing a liquid crystal panel having a liquid crystal layer interposed between a first substrate and a second substrate;

providing first and second polarizing plates on opposing surfaces of the liquid crystal panel;

providing a first front light unit on a front side of the liquid crystal panel; and

providing a second front light unit on a rear side of the liquid crystal panel.

24. The method according to claim 23, wherein the liquid crystal panel is formed in a mode selected from the group consisting of TN mode, IPS mode, and VA mode.

25. The method according to claim 23, wherein the first and second polarizing plates are provided on both surfaces of the liquid crystal panel such that optical axes of the first and second polarizing plates are perpendicular to each other.

26. The method according to claim 23, wherein the first front light unit is operated to cause a first image to be displayed on the rear side of the liquid crystal panel, and the second front light unit is operated to cause a second image to be displayed on the front side of the liquid crystal panel.

27. The method according to claim 23, wherein the liquid crystal panel functions in a TN mode, such that the first front light unit is in a ON state and an image displayed on the rear side of the liquid crystal panel is in a black mode, and such that the first front light unit is in an OFF state and an image displayed on the rear side of the liquid crystal panel is in a white mode.

28. The method according to claim 23, wherein the liquid crystal panel functions in a TN mode, such that the second front light unit is in an ON state and an image displayed on the front side of the liquid crystal panel is in a black mode, and the second front light unit is in an OFF state and an image displayed on the front side of the liquid crystal panel is in a white mode.

29. A method of fabricating a dual LCD device, comprising:

providing a liquid crystal panel having a liquid crystal layer interposed between a first substrate and a second substrate;

providing first and second polarizing plates to opposing surfaces of the liquid crystal panel;

providing a first front light unit on a front side of the liquid crystal panel;

providing a second front light unit on a rear side of the liquid crystal panel; and

providing a fine reflecting and scattering film between one of the first polarizing plate and the first front light unit, and the second polarizing plate and the second front light unit.

30. The method according to claim 29, wherein the liquid crystal panel is formed in one mode selected from the group consisting of TN mode, IPS mode, and VA mode.

31. The method according to claim 29, wherein the first and second polarizing plates are provided on both surfaces of the liquid crystal panel such that optical axes of the first and second polarizing plates are perpendicular to each other.

32. The method according to claim 29, wherein the first front light unit is operated to cause a first image to be displayed on the rear side of the liquid crystal panel, and the second front light unit is operated to cause a second image to be displayed on the front side of the liquid crystal panel.

33. The method according to claim 29, wherein the fine reflecting and scattering film is provided between the first polarizing plate and the first front light unit and receives ambient light supplied from the rear side of the liquid crystal panel and reflects the received ambient light to the rear side of the liquid crystal panel.

34. The method according to claim 33, wherein the fine reflecting and scattering film is provided between the first polarizing plate and the first front light unit and enhances a brightness of the image displayed on the rear side of the liquid crystal panel.

35. The method according to claim 29, wherein the fine reflecting and scattering film is provided between the second polarizing plate and the second front light unit and receives ambient light supplied from the front side of the liquid crystal panel and reflects the received ambient light to the front side of the liquid crystal panel.

36. The method according to claim 35, wherein the fine reflecting and scattering film is provided between the second polarizing plate and the second front light unit and enhances a brightness of the image displayed on the front side of the liquid crystal panel.

37. The method according to claim 29, wherein the fine reflecting and scattering film is provided between the first polarizing plate and the first front light unit and prevents Moiré phenomenon from occurring when an image is displayed on the rear side of the liquid crystal panel due to a light emitted from the first front light unit.

38. The method according to claim 29, wherein the fine reflecting and scattering film is provided between the second polarizing plate and the second front light unit and prevents Moiré phenomenon from occurring when an image is displayed on the front side of the liquid crystal panel due to a light emitted from the second front light unit.

39. A method of fabricating a dual LCD device, comprising:

providing a liquid crystal panel having a liquid crystal layer interposed between a first substrate and a second substrate;

providing first and second polarizing plates on opposing surfaces of the liquid crystal panel;

providing a first front light unit on a front side of the liquid crystal panel;

providing a second front light unit on a rear side of the liquid crystal panel; and

providing a scattering film between one of the first polarizing plate and the first front light unit, and the second polarizing plate and the second front light unit.

40. The method according to claim 39, wherein the liquid crystal panel is formed in one mode selected from the group consisting of TN mode, IPS mode, and VA mode.

41. The method according to claim 39, wherein the first and second polarizing plates are provided on both surfaces of the liquid crystal panel so that optical axes of the polarizing plates are perpendicular to each other.

42. The method according to claim 39, wherein the first front light unit is operated to cause a first image to be displayed on the rear side of the liquid crystal panel, and the second front light unit is operated to cause a second image to be displayed on the front side of the liquid crystal panel.

43. The method according to claim 39, wherein the scattering film is provided between the first polarizing plate and the first front light unit and prevents Moiré phenomenon from occurring when an image is displayed on the rear side of the liquid crystal panel due to a light emitted from the first front light unit.

44. The method according to claim 39, wherein the scattering film is provided between the second polarizing plate and the second front light unit and prevents Moiré phenomenon from occurring when an image is displayed on the front side of the liquid crystal panel due to a light emitted from the second front light unit.